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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/597,530	06/20/2000	Anthony Sabatino	1461	5976

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EXAMINER	
LY, NGHI H	
ART UNIT	**PAPER NUMBER**
2686	

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/597,530	SABATINO, ANTHONY	
	Examiner	Art Unit	
	Nghi H. Ly	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09/30/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4, 7-9, 11-13, 15-20, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corbefin et al (US 6,269,243) in view of Powell (US 4,916,460) and further in view of Ritter (US 2002/0094829 A1) and further in view of Connolly (US 5,274,391).

Regarding claims 1, Corbefin teaches a system for providing wireless communication service to a passenger compartment of an aircraft (see fig.1, passengers inside the aircraft A), comprising in combination: an external antenna located on an exterior portion of the aircraft (see fig.1 external antenna 2 and see abstract for more details), the external antenna operable to receive and in coming external signal form and transmit an out going external signal to a terrestrial base station (see fig.1, wireless connection between antenna 2 and base station I, and see

column 3, lines 45-55), a cabin antenna located in the passenger compartment of the aircraft (see fig.1, antenna 3 and see Abstract), and a signal pathway linking the external antenna to the cabin antenna (see fig.1, the connection between antennas 2 and 3).

Corbefin does not specifically disclose at least a portion of the signal pathway includes at least one low-energy transmission medium.

Powell teaches at least a portion of the signal pathway includes at least one low-energy transmission medium (see fig.1 fiber optic cable connection between antennas 16A and 40, and see column 1, lines 43-44, "a fiber optic network connected between the primary antennas and the secondary antennas").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Powell into the system of Corbefin so that signals traveling within the fiber optic network are unaffected by radio frequency interference (see Powell column 3, lines 53-57) and the network could be established at a very significantly reduced cost (see Powell column 3 lines 38-41).

The combination of Powell and Corbefin do not specifically disclose the cabin antenna is oriented such that a transmission pattern of the cabin antenna is substantially directed away form a cockpit area of the aircraft to minimize interference with a flight control system of the aircraft, the flight control system being substantially located in the cockpit area, and wherein the cabin antenna is additionally configured to substantially minimize back lobe energy directed toward the cockpit area, thereby further reducing interference to the flight and control system of the aircraft.

Ritter teaches the cabin antenna is oriented such that a transmission pattern of the cabin antenna is substantially directed away from a cockpit area of the aircraft to minimize interference with a flight and control system of the aircraft (page 1, [0019], see "airplane" and page 1, [0020], see "Each transceiver has an antenna oriented within the vehicle and <u>in the direction of the passengers</u>". In addition, Ritter's fig.1, see the wireless connection between transceiver 31 and a passenger sit in the back of the bus reads on Applicant's "substantially directed away from a cockpit area"), the flight control system being substantially located in the cockpit area (see fig.1, central data processing 2), and wherein the cabin antenna is additionally configured to substantially minimize back lobe energy directed toward the cockpit area (page 1, [0019], see "airplane" and page 1, [0020], see "Each transceiver has an antenna oriented within the vehicle and <u>in the direction of the passengers</u>". In addition, Ritter's fig.1, see the wireless connection between transceiver 31 and a passenger sit in the back of the bus reads on Applicant's "substantially directed away from a cockpit area"), thereby further reducing interference to the flight and control system of the aircraft (page 1, [0019], see "airplane" and page 1, [0020], see "Each transceiver has an antenna oriented within the vehicle and <u>in the direction of the passengers</u>". The teaching of Ritter inherently teaches Applicant's "reducing interference to the flight and control system of the aircraft").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Ritter into the system of Corbefin and Powell in order to prevent communication signal interfere with the cockpit (Ritter, see page 1, [0019] for "airplane").

The combination of Powell, Corbefin and Ritter do not specifically disclose the antenna is additionally configured with a high front-to-back ratio to substantially minimize back lobe energy.

Connolly teaches the antenna is additionally configured with a high front-to-back ratio to substantially minimize back lobe energy (see column 6, lines 27-29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Connolly into the system of Corbefin, Powell and Ritter in order to suppress back lobe (Connolly, column 6, lines 27-29).

Regarding claim 2, Corbefin and Ritter as modified by Connolly do not specifically disclose the low-energy transmission medium comprises at least one optical fiber.

Powell teaches the low-energy transmission medium comprises at least one optical fiber (see Powell fig.1 fiber optic cables 20 and 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Powell into the system of Corbefin, Ritter and Connolly so that signals traveling within the fiber optic network are unaffected by radio frequency interference (see Powell column 3, lines 53-57) and the network could be established at a very significantly reduced cost (see Powell column 3 lines 38-41).

Regarding claim 3, Corbefin and Ritter as modified by Connolly does not specifically disclose the low-energy transmission medium is non-metallic.

Powell teaches the low-energy transmission medium is non-metallic (also see Powell fig.1, fiber optic cables 20 and 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Powell into the system of Corbefin, Ritter and Connolly so that signals traveling within the fiber optic network are unaffected by radio frequency interference (see Powell column 3, lines 53-57) and the network could be established at a very significantly reduced cost (see Powell column 3 lines 38-41).

Regarding claim 4, Ritter and Connolly as modified by Corbefin teaches a repeater (see Corbefin, fig.1, transponder 4).

Ritter and Connolly as modified by Corbefin does not specifically disclose the at least one optical fiber has a first fiber end and a second fiber end, the signal pathway additionally comprises: first and second converters operable to convert RF signals to light energy and to convert light energy to RF signal, wherein the first converter is located at the first fiber end and the second converter is located at the second fiber end.

Powell teaches the at least one optical fiber has a first fiber end and a second fiber end (see Powell fig.2, optical interface system 25 and see column 2, lines 29-42), the signal pathway additionally comprises: first and second converters operable to convert RF signals to light energy and to convert light energy to RF signal, wherein the first converter is located at the first fiber end and the second converter is located at the second fiber end (see Powell fig.2, and see column 3 lines 18-37).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Powell into the system of Corbefin, Ritter and Connolly so that signals traveling within the fiber optic network are unaffected by radio frequency interference (see Powell column 3, lines 53-57) and the network could be established at a very significantly reduced cost (see Powell column 3 lines 38-41).

Regarding claim 7, claim 7 is rejected with the similar reason as set forth in claim 1 above.

Regarding claim 8, Corbefin and Ritter as modified by Connolly does not specifically disclose the low-energy transmission medium incluses at least one optical fiber, and wherein the at least one incoming low-energy signal is composed of light energy.

Powell teaches the low-energy transmission medium comprises at least one optical fiber, and wherein the at least one incoming low-energy signal is composed of light energy (see Powell Fig.1 fiber optic cables 20 and 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Powell into the system of Corbefin so that signals traveling within the fiber optic network are unaffected by radio frequency interference (see Powell column 3, lines 53-57) and the network could be established at a very significantly reduced cost (see Powell column 3 lines 38-41).

Regarding claim 9, Corbefin further teaches the at least on external antenna is located on an external portion of the aircraft (see fig.1 external antenna 2 and see abstract for more details).

Regarding claim 11, Corbefin teaches the step of transmitting the at least one outgoing external signal are performed at a location outside the passenger compartment (see Corbefin Fig.2, ER1 is located outside the passenger compartment).

Corbefin does not specifically disclose the step of converting the at least one low-energy outgoing signal.

Powell and Ritter as modified by Connolly further teaches the step of converting the at least one low-energy outgoing signal (see Powell fig.1, fiber optic cables 20 and 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Powell into the system of Corbefin so that signals traveling within the fiber optic network are unaffected by radio frequency interference (see Powell column 3, lines 53-57) and the network could be established at a very significantly reduced cost (see Powell column 3 lines 38-41).

Regarding claim 12, Corbefin further teaches a system for providing wireless communication service to a passenger compartment of an aircraft (see Corbefin fig.1 wireless communication between passengers P and antenna 3).

Regarding claim 13, the combination of Corbefin, Powell and Ritter further teaches repeating the at least one incoming external including amplifying the at least

one incoming external signal (see Powell fig.1 an amplifier under antenna 40 or see column 2, lines 61-63 "receiver amplifier unit 42").

Regarding claim 15, claim 15 is rejected for the same reasons as set forth in claim 1 above.

Regarding claim 16, Corbefin and Ritter as modified by Connolly do not specifically disclose the low-energy transmission medium incluses at least one optical fiber, and wherein the at least one incoming low-energy signal is composed of light energy.

Powell teaches the low-energy transmission medium comprises at least one optical fiber, and wherein the at least one incoming low-energy signal is composed of light energy (see Powell fig.1 fiber optic cables 20 and 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Powell into the system of Corbefin so that signals traveling within the fiber optic network are unaffected by radio frequency interference (see Powell column 3, lines 53-57) and the network could be established at a very significantly reduced cost (see Powell column 3 lines 38-41).

Regarding claim 17, Corbefin further teaches the at least on external antenna is located on an external portion of the aircraft (see fig.1 external antenna 2 and see abstract for more details).

Regarding claim 18, Corbefin further teaches repeating the at least one outgoing external signal (see fig.1, transponder 4 connected with external antenna 2 for repeating the outgoing external signal).

Regarding claim 19, Corbefin teaches the step of transmitting the at least one outgoing external signal are performed at a location outside the passenger compartment (see Corbefin fig.2, ER1 is located outside the passenger compartment).

Corbefin as modified by Ritter and Connolly do not specifically disclose the step of converting the at least one low-energy outgoing signal.

Powell further teaches the step of converting the at least one low-energy outgoing signal (see Powell fig.1, fiber optic cables 20 and 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Powell into the system of Corbefin, Ritter and Connolly so that signals traveling within the fiber optic network are unaffected by radio frequency interference (see Powell column 3, lines 53-57) and the network could be established at a very significantly reduced cost (see Powell column 3 lines 38-41).

Regarding claim 20, Corbefin further teaches a system for providing wireless communication service to a passenger compartment of an aircraft (see Corbefin fig.1 wireless communication between passengers P and antenna 3).

Regarding claim 23, claim 23 is rejected with the similar reason as set forth in claim 1 above.

Regarding claim 24, Corbefin further teaches a system for providing wireless communication service to a passenger compartment of an aircraft (see Corbefin fig.1 wireless communication between passengers P and antenna 3).

5. Claims 5, 6, 10, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corbefin et al (US 6,269,243) in view of Powell (US 4,916,460) and Ritter (US 2002/0094829 A1) and further in view of Connolly (US 5,274,391) and Gilhousen (US 5,559,865).

Regarding claim 5, the combination of Corbefin, Powell, Ritter and Connolly teaches claim 4. The combination of Corbefin, Powell, Ritter and Connolly do not specifically disclose the repeater includes an amplifier.

Gilhousen teaches the repeater includes an amplifier (see Gilhousen column 2, lines 48-52).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Gilhousen into the system of Corbefin, Powell, Ritter and Connolly in order to enhance the transmission signal and radio coverage.

Regarding claim 6, the combination of Corbefin, Powell, Ritter and Connolly teaches claim 4. The combination of Corbefin, Powell, Ritter and Connolly does not specifically disclose at least one amplifier operable to amplify a first frequency range and a second frequency range.

Gilhousen teaches at least one amplifier operable to amplify a first frequency range and a second frequency range (see Gilhousen column 2, lines 48-52).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Gilhousen into the

system of Corbefin, Powell, Ritter and Connolly in order to enhance the transmission signal and radio coverage.

Regarding claim 10, Powell, Corbefin and Ritter as modified by Connolly does not specifically disclose repeating the at least one incoming external signal.

Gilhousen teaches repeating the at least one incoming external signal (see Gilhousen, fig.2, connection between repeater 210 and antenna 215 for repeating the incoming external signal).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Gilhousen into the system of Corbefin, Powell, Ritter and Connolly in order to enhance the transmission signal and radio coverage.

Regarding claim 21, Powell, Corbefin and Ritter as modified by Connolly do not specifically disclose repeating the at least one outgoing external signal includes amplifying the at least one outgoing external signal.

Gilhousen teaches repeating the at least one outgoing external signal includes amplifying the at least one outgoing external signal (see Gilhousen column 2, lines 48-52).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Gilhousen into the system of Corbefin, Powell, Ritter and Connolly in order to enhance the transmission signal and radio coverage.

5. Claims 14 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corbefin et al (US 6,269,243) in view of Powell (US 4,916,460) and Ritter (US 2002/0094829 A1) and further in view of Connolly (US 5,274,391), Gilhousen (US 5,559,865) and Mashida (JP408167786A).

Regarding claim 14, the combination of Corbefin, Powell, Ritter, Connolly and Gilhousen teaches the steps of repeating and converting the at least one incoming external signal are performed in the aircraft (see Gilhousen column 2, lines 48-52 and see fig.2, connection between repeater 210 and antenna 215 for repeating the outgoing/incoming external signal). The combination of Corbefin, Powell, Ritter, Connolly and Gilhousen does not specifically disclose the step of repeating is performed in an electromagnetically isolated portion.

Mashida teaches the step of repeating is performed in an electromagnetically isolated portion (see Mashida, Purpose).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Mashida into the system of Corbefin, Powell, Ritter, Connolly and Gilhousen in order to protect the repeater from electromagnetic effect (see Mashida's Purpose).

Regarding claim 22, the combination of Corbefin, Powell, Ritter, Connolly and Gilhousen teaches the steps of repeating and converting the at least one outgoing external signal are performed in the aircraft (see Gilhousen column 2, lines 48-52 and see fig.2, connection between repeater 210 and antenna 215 for repeating the outgoing/incoming external signal). The combination of Corbefin, Powell, Ritter,

Connolly and Gilhousen does not specifically disclose the step of repeating is performed in an electromagnetically isolated portion.

Mashida teaches the step of repeating is performed in an electromagnetically isolated portion (see Mashida, Purpose).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the above teaching of Mashida into the system of Corbefin, Powell, Ritter, Connolly and Gilhousen in order to protect the repeater from electromagnetic effect (see Mashida's Purpose).

Response to Arguments

6. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

On page 3 of Applicant's remarks, Applicant argues that a total of four, five and even six references have been used in the Office action.

In response to applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

On page 4 of Applicant's remarks, Applicant argues that there is no motivation to combine the references.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by

combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to do so found in the references so that signals traveling within the fiber optic network are unaffected by radio frequency interference (see Powell column 3, lines 53-57) *and* the network could be established at a very significantly reduced cost (see Powell column 3 lines 38-41), *and* in order to prevent communication signal interfere with the cockpit (Ritter, see page 1, [0019] for "airplane") and in order to suppress back lobe (Connolly, column 6, lines 27-29). In addition, Applicant's attention is directed to the rejection of claim 1 above.

On pages 6 and 7 of Applicant's remarks, Applicant argues that Ritter does not teach *each transceiver is not substantially directed away from a cockpit area of the aircraft. Figure 1 of Ritter discloses at least one transceiver 32, located in the first compartment of the vehicle, which is directed toward the cockpit area 2.*

The Examiner, however, disagrees. Ritter's fig.1, see the wireless connection between transceiver 31 and a passenger sit in the back of the bus reads on Applicant's "substantially directed away from a cockpit area".

On pages 8-10 of Applicant's remarks, Applicant argues that the combination of the references does not teach Applicant's claims 1, 5, 6, 7, 10, 15, 18 and 21.

In response, the combination of Corbefin, Powell, Ritter, Connolly and Gilhousen indeed teaches claims 1, 5, 6, 7, 10, 14, 15, 18, 21 and 22. In addition, Applicant's attention is directed to the rejection of claims 1, 5, 6, 7, 10, 15, 18 and 21 above.

On page 10 of Applicant's remarks, Applicant argues that Mashida does not teach the element of: a cabin antenna (located in a passenger compartment of an aircraft), wherein (i) the cabin antenna is oriented such that a transmission pattern of the cabin antenna is substantially directed away from a cockpit area of the aircraft to minimize interference with a flight and control system of the aircraft, the flight and control system being substantially located in the cockpit area, and wherein (ii) the cabin antenna is additionally configured with a high front-to-back ratio to substantially minimize back lobe energy directed toward the cockpit area, thereby further reducing interference to the flight and control system of the aircraft.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Mashida teaches the step of repeating is performed in an electromagnetically isolated portion (see Mashida, Purpose) and the combination of Corbefin, Powell, Ritter, Connolly and Gilhousen indeed teaches Applicant's claimed limitation. In addition, Applicant's attention is directed to the rejection of claims 14 and 22 above.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nghi H. Ly whose telephone number is (571) 272-7911. The examiner can normally be reached on 8:30 am-5:30 pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nghi H. Ly

12/19/05

Marsha D Banks-Harold
MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600